



Section VII

Wildlife Disturbance

- **Marine Mammal, Seabird and Turtle Disturbance Action Plan**
- **Motorized Personal Watercraft Action Plan**
- **Tidepool Protection Action Plan**

Marine Mammal, Seabird, and Turtle Disturbance Action Plan

Goal

Minimize disturbance of marine mammals, seabirds and turtles within the Monterey Bay National Marine Sanctuary (MBNMS).

Introduction

Over the last twenty years, increasing numbers of people have been seeking opportunities to view and experience marine wildlife. For the most part, wildlife viewing has resulted in many positive benefits including new economic opportunities for local communities, and increased public awareness and stewardship for marine resources. However, marine wildlife can be disturbed and/or injured when viewing activities are conducted inappropriately. Disturbance or injury also occurs through commercial harvest activities. Frequent disturbance can adversely affect marine species. The effects of disturbance can be especially critical during sensitive time periods such as feeding, breeding, resting, or nesting. Disturbance is likely to cause avoidance reactions and may result in interruptions of social behavior of animals and is capable of leading to long-term changes in distribution. Public awareness is necessary to effectively address wildlife disturbance issues since most people who choose to view marine wildlife do not intend to place the animals or themselves at risk.

The MBNMS addresses wildlife disturbance through a mix of education, outreach, partnerships with docent programs, regulations and enforcement. The MBNMS regulations explicitly prohibit harassment of marine mammals as defined under the Marine Mammal Protection Act (MMPA), as well as harassment of sea turtles, and birds. Other MBNMS regulations relating to wildlife disturbance include restrictions on flying motorized aircraft below 1,000 feet in three designated sensitive areas, a prohibition on attracting white sharks, and restrictions on the use of motorized personal watercraft (MPWC). Non-regulatory measures are also used by the MBNMS to address wildlife disturbance, and include a variety of education and outreach activities and products.

Wildlife disturbance within the MBNMS is governed by several jurisdictions and law and regulations stemming from the NMSA, the Endangered Species Act (ESA), the California Endangered Species Act (CESA), the Migratory Bird Treaty Act (MBTA), and the Marine Mammal Protection Act (MMPA). The MBNMS coordinates with NOAA Fisheries to evaluate acceptable levels of fishery-related bycatch of marine mammals, seabirds, and turtles under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). The following activities related to wildlife disturbance are prohibited within the MBNMS: discharging matter (with certain exceptions); disturbing marine mammals, sea turtles, and birds; attracting white sharks; flying motorized aircraft below 1,000 feet in certain areas; and operation of jet skis outside of the designated zones.

Efforts to minimize the disturbance of wildlife will focus on identifying gaps in the existing system of protection and formulating a plan to jointly develop specific, more detailed

recommendations for those topics that have emerged as priorities. Many species in the MBNMS warrant further protection via outreach, education, enforcement or other strategies designed to inform the public and specific user groups of the need to prevent wildlife disturbance within the MBNMS.

Strategy MMST-1: Mitigate Impacts From Marine Vessels

Motorboats, whale watching vessels, kayaks, and military watercraft can disturb seabird colonies, rookeries, haulout areas, sea otters, or whales, particularly when operating in sensitive areas. The use of motorized or non-motorized vessels (outboard or inboard boats, kayaks, canoes, underwater scooters, or other types of water craft) to interact with marine mammals is increasing nationwide. NOAA Fisheries and the MBNMS receive complaints from members of the public of operators driving through groups of dolphins to elicit bow-riding behavior, whale watching vessels overly encroaching on whales or chasing animals, and kayakers too close to sea otters and harbor seals. Small boats particularly in areas near Elkhorn Slough and harbors may cause fatal blunt trauma injuries to sea otters. These actions can lead to many reactions in marine animals from fatality to avoidance responses and other unnatural behavior.

Activity 1.1: Develop and Distribute Wildlife Viewing Guidelines Addressing Marine Vessels

MBNMS will work to identify existing guidelines such as those generated by Watchable Wildlife, and adapt them to the MBNMS area, where appropriate. MBNMS will work with partners to distribute wildlife viewing guidelines for approaching seabirds, marine mammals, and turtles and helping to identify behavioral stress patterns of the animal. Initial efforts will include identifying target audiences to determine the best ways to package and distribute guidelines and use the MBNMS website to post information pertaining to wildlife observation.

Activity 1.2: Continue and Strengthen MBNMS Team OCEAN Kayak Program

The MBNMS will continue, strengthen, and expand the MBNMS Team Ocean Conservation Education Action Network (Team OCEAN) program, which educates on-the-water kayak users in an effort to prevent disturbance or harassment to sea otters, sea lions, harbor seals, and sea birds.

Activity 1.3: Develop Informational Cards with Guidelines for Viewing Marine Species from Kayaks

The MBNMS will develop partnerships with kayak companies to attach the informational cards to kayaks. MBNMS staff should conduct bi-annual evaluations with kayak companies to ensure that these educational efforts are effective and distribute the informational cards and other signage to boating supply stores, kayak shops, or other commercial venues. MBNMS will also develop additional educational training for local kayak and scuba diving shops, in order to reduce adverse reactions in species of concern. These training sessions should be complemented by outreach workshops outlined in other activities in this strategy.

Activity 1.4: Conduct Outreach and Promotion of Wildlife Viewing Guidelines to Private Boaters

The MBNMS should conduct an assessment of the most effective way to reach boaters with educational materials, including workshops and literature, to educate them on wildlife observation guidelines and vessel operation etiquette. MBNMS will post wildlife viewing

guidelines information at launch ramps, parking areas, public restrooms, or fuel docks. Speed guidelines posted in harbors should be augmented with information about sensitive species in the area, such as sea otters. MBNMS should consider development of a “Dock Walkers” program, in which educators encounter users at the harbor and instruct them about wildlife viewing.

Activity 1.5: Continue Outreach and Promotion of Wildlife Viewing Guidelines to Whale Watching Vessels

MBNMS will conduct workshops and other training to ensure that operators of whale watching vessels are aware of the guidelines for wildlife viewing and operating in a responsible manner.

Activity 1.6: Increase Federal Inter-agency Consultation

The MBNMS should conduct outreach to military environmental liaison to ensure that the military understands MBNMS requirements. In addition to current regulations, the NMSA requires other federal agencies to “consult” with the MBNMS when planning projects likely to injure Sanctuary resources. MBNMS will conduct annual training with federal agencies to ensure that boat operators and pilots are aware of sensitive marine species areas and overflight zones. This annual training is especially important for the US Coast Guard (USCG), which experiences high rotations of staff.

Activity 1.7: Share and Distribute Detailed Geographic Information System (GIS) Data Outlining Areas of Concern

MBNMS will distribute data identifying species distribution, migratory corridors, and seasonal patterns. This information should be included in training and provided as an ongoing tool to better coordinate military training activity to avoid impacts. MBNMS will work with the USCG pilots to facilitate their ability to download this information directly into their electronic flight planners.

Strategy MMST-2: Mitigate Impacts From Low Flying Aircraft

Low flying aircraft are known to cause seabirds, pinnipeds, and whales to exhibit avoidance responses. There are a variety of user groups associated with this activity, which may require different strategies in addressing the problem. The following actions and user groups are of concern: commercial film making flight operations, private non-profit aviation, military and agency (e.g., USCG) aircraft, and other potential activities. Potential impacts from low-flying aircraft are addressed by a specific prohibition on flying under 1,000 feet in designated overflight zones with sensitive wildlife. MBNMS has begun an outreach campaign to pilot associations on the zones and the impacts of low flights, and is working to include notations on Federal Aviation Administration (FAA) aeronautical charts. Additional outreach may be required to reach aviation companies that may be conducting whale-watching trips within the MBNMS Overflight Restriction Zones. In addition, consideration of potential impacts should be weighed for both fixed-wing aircraft and helicopters. There are inherent differences to the operating capabilities of these aircraft, and thus they cause different impacts to species of concern.

Activity 2.1: Identify MBNMS Overflight Restrictions on FAA Charts

Ensuring that correct verbiage and regulations are posted on the aeronautical charts is critical in an effort to inform pilots of the overflight restriction zones. Current aeronautical charts

incorrectly list the MBNMS overflight restriction zones as being a ‘recommendation’ rather than a ‘requirement.’

Activity 2.2: Identify Areas of Concern for Low Overflights and Continue Monitoring of Sensitive Areas

MBNMS will evaluate key geographical areas to understand priority concern locations and levels of disturbance to assist in targeting outreach and enforcement. The MBNMS will work with local film commissions to identify desirable sites for the film industry and monitor for potential impacts. MBNMS will also work with researchers and monitors in the field to compile data, regarding observations of low flying aircraft and associated disturbance. The MBNMS will also work with the Gulf of the Farallones National Marine Sanctuary (GFNMS) and other partners to monitor and evaluate key sensitive areas within the overflight zones as well as sensitive areas, such as Devil’s Slide on the San Mateo Coast, outside of the existing restriction zone.

Activity 2.3: Provide Permit Guidance to Aircraft Operators

The MBNMS will work with partners to coordinate and develop seasonal restrictions with other regulatory agencies to provide a useful guide for filming companies and conduct outreach for the owners of the few private airstrips along the Big Sur coast.

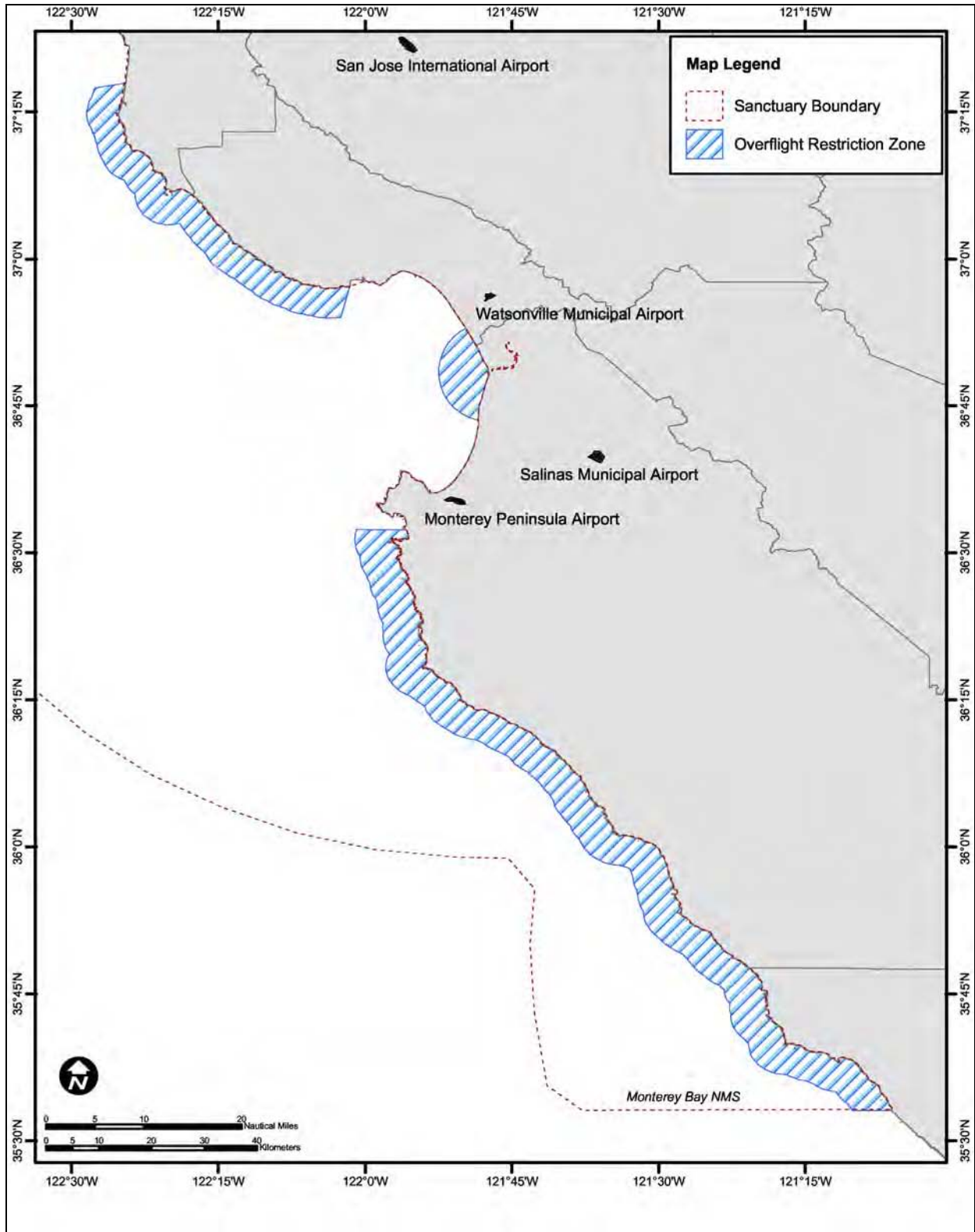
Activity 2.4: Assess Disturbance from Remote Controlled Airplanes

The operation of remote controlled airplanes operating in areas of high seabird and shorebird concentration may cause flushing events. The MBNMS will investigate the frequency and effects of this activity, and where appropriate, work with local municipalities to ensure that the activity is not occurring in highly sensitive habitat areas. Signage and outreach should be in place to educate the hobbyists on potential impacts their actions may cause. Further, the MBNMS regulations apply to remote controlled airplanes.

Activity 2.5: Assess Disturbance from Parasails and Hang Gliders

The MBNMS will work with partners as well as aid and encourage other agencies to evaluate the potential for parasails and hanggliders to disturb snowy plovers.

Figure MMST 1. Existing MBNMS Overflight Restriction Zones



Strategy MMST-3: Mitigate Impacts From Shore-Based Activities

There is a need to evaluate and possibly further address and reduce shore-based disturbance. Disturbance is known to cause seabirds, shorebirds, and pinnipeds to exhibit avoidance responses resultant from the interactions. MBNMS should conduct an assessment of the target audience in order to develop the best tools and materials to reach them.

Activity 3.1: Develop Wildlife Viewing Guidelines Addressing Shore-Based Activities

Identify, modify or draft appropriate guidelines for shore-based interactions with species of concern. This will complement the efforts listed in Strategy MMST-1.

Activity 3.2: Support Partners and Organization Conducting Outreach Activities

The MBNMS will continue to support organizations that conduct activities that reduce harassment to wildlife. The Friends of the Elephant Seal (FES), BayNet, or similar programs should be strengthened to ensure that volunteers continue to be available to interact with the public. The MBNMS will continue to collaborate with state parks and other sites that have intense visitor use to identify strategies to reduce wildlife disturbance, and facilitate increased signage at state parks to complement docent programs. The MBNMS should facilitate a column in a local newspaper that would outline various educational components for the public and offer seasonal information on various species, viewing protocols, pollution reduction tips, or other items of interest.

Activity 3.3: Continue Coordination with US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to Address Disturbance from Fireworks

Fireworks displays over the MBNMS have been traditionally conducted as part of national and community celebrations. The MBNMS began consultation with the USFWS and the NMFS in 2003 as required by the ESA, MBTA, and the MMPA. This process will outline permit conditions and maximum number of fireworks allowed at various locations, including areas where fireworks will not be allowed. MBNMS will continue to coordinate with appropriate agencies as permit applications are submitted.

Strategy MMST-4: Mitigate Impacts From Marine Debris

Levels of debris in both the ocean and at the land-sea interface are of growing concern. Various types of debris are known to have adverse effects on marine species. Plastics in the marine environment never fully degrade and recent studies show plastic is consumed by organisms at all levels of the marine food web. Dichlorodiphenyltrichloroethane (DDT) and other hydrophobic compounds are known to adhere to plastics. Ingestion and entanglement are one of the many problems associated with marine debris, which may eventually lead to death for many organisms. Priority types of marine debris include balloons, abandoned/discarded fishing gear, plastics and styrofoam, and consumer goods including 6-pack rings, plastic shopping bags, etc. The MBNMS should conduct an assessment of the target audience in order to develop the best tools and materials to reach them.

Activity 4.1: Coordinate with the California Coastal Commission (CCC) to Conduct Education and Outreach Programs to Illustrate the Impact of Marine Debris

The MBNMS will work with the CCC to determine how to best make information available to the general public for land-based education and all boaters—including the military, cruise ships, large commercial vessels, and fishermen—for ocean-based education. The MBNMS will work with partners to engage the media in wildlife issues adversely affected by debris, such as entangled animals, and identify areas where pelagic plastics accumulate in order to increase awareness of the connection to both land-based and offshore actions. The MBNMS will also work with the CCC to develop public service announcements that educate the public on the concerns and solutions to the issue. This public awareness strategy should fully integrate an educational component about marine debris into the campaign.

Activity 4.2: Expand GIS Database to Monitor Marine Debris in MBNMS

The MBNMS will work with the Ocean Conservancy and the CCC to expand the database to track and characterize the type, location and amounts of marine debris collected through coastal cleanup efforts. Monitoring results will be integrated with other wildlife disturbance monitoring data into the Sanctuary Integrated Monitoring Network (SIMoN).

Activity 4.3: Increase Education Regarding Impacts of Lost Balloons

Balloons are often found at sea and have deleterious effects on various forms of marine species. Develop informational tags to be placed on commercial helium tanks and balloons to illustrate the hazards of releasing balloons into the environment. Information should also be provided to area businesses.

Activity 4.4: Develop Notification and Recovery Program for Abandoned Gear

Work with other appropriate agencies to implement a notification and recovery program to collect fishing gear, similar to the program created in the Northwest Hawaiian Islands where derelict fishing gear is recovered. The USCG will retrieve abandoned fishing gear if it is deemed to be a hazard to navigation. However, gear that is not a navigation hazard is not recovered. The MBNMS should target educational efforts to fishermen and other users regarding the adverse effects of lost gear and debris. This activity will be valuable in combating this form of debris and encourage the USCG to, where possible, recover derelict fishing gear or assist in communication with others who could accomplish recovery. The MBNMS will work with partners to identify and enlist a network of trained partner organizations or individuals who are able to retrieve abandoned gear, after it is determined that the gear is in fact abandoned, while developing a notification system that the USCG, fishermen, researchers and other boaters can use to notify the recovery network of the locations of abandoned gear. The MBNMS will work with partners to develop a criteria list to evaluate whether gear is in fact abandoned. The MBNMS should evaluate the feasibility of developing a shore-side reward program for removal of gear that becomes washed up on beaches. An education component would be necessary to alert beachgoers of the recovery program.

Activity 4.5: Coordinate with Municipalities to Reduce Debris Accumulation

Local consumers, businesses, tourists, and residents should be made aware of the hazards associated with marine debris. Education efforts, in general, have been found to be more effective at the source of the problem than end-based solutions. The MBNMS will identify the

priority debris types to help formulate an educational approach to the issue, and conduct educational efforts with municipalities to install storm shields or catchment basins over storm drains in order to reduce the amount of post consumer garbage that enters the ocean during times of dry weather. The MBNMS will also collaborate with municipalities, cities, and students to paint stencils on storm drains, alerting others to this problem. The MBNMS will also work to support volunteer-based creek cleanups conducted in advance of wet weather in order to reduce the amount of plastic and trash contribution to the MBNMS.

Activity 4.6 Establishing a Large Whale Disentanglement Network

The MBNMS will work with other agencies and organizations to better develop and integrate a large-whale stranding network. During the Fall of 2006 the MBNMS participated in public outreach events and conducted trainings in whale rescue techniques in conjunction with HIHWNMS staff to demonstrate techniques and gear used to disengage large whales from fishing gear and non-fishery equipment and marine debris. Future efforts would likely include additional funding to conduct trainings and dissemination of education materials to address this issue. Future collaborations with partners would also include strengthening the stranding network by procuring necessary gear and expertise to be able to respond appropriately to large-scale stranding events of any kind including those resultant from acoustic impacts.

Strategy MMST-5: Evaluate Impacts From Commercial Harvest

Commercial harvesting of certain fish and kelp resources may result in varied types of disturbance to wildlife. The use of nighttime lighting in the commercial squid fishery may disturb certain seabirds such as pelicans, petrels, and auklets as well as sea otters by disrupting natural behavior. Kelp harvesting may involve potential disturbance of various fauna associated with the kelp ecosystem. Certain species such as sea otters could be prone to harassment by harvesting operations in the kelp beds. Certain methods of aquaculture can result in harm or mortality to seabirds. Pens used for rearing juvenile species can trap seabirds attracted to the contents, thereby resulting in injury or death.

Activity 5.1: Evaluate Levels of Disturbance and Identify Solutions

The MBNMS should conduct research activities to evaluate disturbance from kelp harvesting, lighting from squid fishing vessels, and aquaculture pens and gear entanglement. Potential solutions may include future, further evaluation of shielding or re-directing the light sources in some fashion to ensure current designs are adequate, and modifications to fishing gear and aquaculture pens to reduce bycatch and entanglement. The MBNMS will work with partners to determine if aquaculture pens could be redesigned to reduce entanglement of seabirds. (Note: penned aquaculture, if allowed, requires an authorization from the MBNMS.) The MBNMS will also work with the National Marine Fisheries Service (NMFS) to examine the scope of fishermen unintentionally snagging their gear on whales when both are focused on feeding grounds in the MBNMS. The MBNMS will invite fishermen to participate in training and workshops that will be conducted to reduce unintentional harassment or disturbance to marine species.

Activity 5.2: Coordinate with NOAA Fisheries to Reduce Bycatch of Marine Mammals, Sea Turtles and Birds

The MBNMS will work with NOAA Fisheries to reduce bycatch of marine mammals, turtles and birds associated with fishing activities in the MBNMS. Marine species are known to be prone to hooking and entanglement in fishing lines, gill nets, buoyed anchor lines, discarded fishing gear and other equipment, which can lead to serious injuries or death.

Strategy MMST-6: Assess Impacts From Acoustics

Noise levels in the marine environment have been increasing from increased shipping traffic, sonar technologies, seismic surveys, loudspeakers on boats traveling by or stopping close to nearshore rookeries, and research projects. The effects of noise on marine mammals, seabirds, and turtles is not entirely known, though some active sonars have been conclusively linked to the deaths of whales in other areas. Issues of concern include the effects of acoustics on marine mammals by ships, offshore commercial activities, the military, research, or other influences. NOAA has conducted and continues to conduct research regarding the effects of sound disturbance on marine mammals; however, additional MBNMS-specific research and monitoring may be necessary.

Activity 6.1: Expand Research and Monitoring of Acoustics in MBNMS

Strategies to address the above issue include gathering more information and data on the effects of sound in the marine environment. MBNMS will work with partners to encourage passive acoustic monitoring in order to identify and quantify sources of anthropogenic noise in air and underwater and continue to be apprised of survey and monitoring activities that are evaluating the effects of sound. The NMSP will encourage its research and agency partners to catalogue and analyze anthropogenic noise sources and levels so that staff can better understand the potential impacts and make management decisions based upon this information. NMSP acoustic experts will assist MBNMS staff in developing effective monitoring programs for research and mitigation purposes, and interpreting resulting acoustic data.

Activity 6.2: Continue Evaluation of Individual Projects with Potential Acoustic Disturbance

Potential effects of acoustic disturbance are not entirely known for marine species; however, there is a correlation between some acoustics sources and marine mammal stranding events in other areas of the world. MBNMS will continue evaluating individual proposals on a case-by-case basis through both the permitting and consultation processes to determine impacts of proposed projects, and develop conditions and/or make management recommendations. The MBNMS should work with NOAA Fisheries and other partners to determine acceptable sound levels in the different frequency ranges affecting sanctuary wildlife.

Strategy MMST-7: Reduce Sea Turtle Disturbance

The MBNMS should work with those involved in regional sea turtle research activities to determine primary threats, known disturbance activities, and strategies to reduce disturbance. Sea turtles are difficult to see from the water and are vulnerable to boat collisions and propeller strikes. Other known threats to turtles include the ingestion of garbage and marine debris such as plastic bags, styrofoam, balloons, and other plastics. These items can cause interference in metabolism or gut function as well being responsible for absorption of toxic byproducts. Contact

with discharged oil can harm sea turtles by adversely affecting respiration, blood chemistry, and salt gland function. Ingestion of tar balls is also of concern.

Activity 7.1: Assess Levels of Sea Turtle Disturbance in MBNMS

Strategies to address the disturbance of sea turtles in the MBNMS include working with NOAA Fisheries on further evaluation of sea turtle tracking projects, evaluation of stranding data, and developing a program to identify common sea turtle disturbance or harassment activities.

Activity 7.2: Address Sea Turtle Disturbance in Wildlife Viewing Guidelines.

Strategy MMST-8: Maintain and Enhance Enforcement

The MBNMS has one dedicated NOAA Enforcement Officer to respond to potential violations of MBNMS regulations. The MBNMS relies heavily on collaborations with other cross-deputized partners such as the California Department of Fish and Game (CDFG) and the California Department of Parks and Recreation (CDPR) to assist with MBNMS enforcement. The MBNMS also funds a half-time law enforcement officer working in the Cambria area to assist with enforcement issues in Cambria, San Simeon, and the Big Sur region. Enforcement patrols by the CDFG and the CDPR for the year 2000 - 2001 were tabulated at 2,444 ‘patrol hours.’ Each hour of enforcement patrol effort reflects the presence of an enforcement unit somewhere in the MBNMS.

Activity 8.1: Strengthen Enforcement of MBNMS Regulations

It is critical to strengthen the availability of surveillance and enforcement capabilities, and to increase the visibility of MBNMS enforcement to enhance educational efforts. MBNMS will identify additional enforcement needs and increase MBNMS enforcement staff as necessary to address issues such as disturbance of wildlife by vessels and aircraft and discharge of marine debris. MBNMS enforcement personnel will also assist with development and distribution of wildlife viewing guidelines and interpretive efforts such as the Team OCEAN kayak program. MBNMS will also pursue partnerships with other state and federal agencies to further protect MBNMS resources and improve inter-agency coordination on enforcement to leverage field efforts, including MBNMS, CDFG, State Parks, and local police.

Activity 8.2: Continue Outreach to Increase Knowledge of MBNMS Regulations and Contact Information

There is some confusion among members of the public as to what the MBNMS regulations are and who to contact in the event of a violation. The MBNMS will work with other regulatory agencies to develop and disseminate readily understandable information about complex regulations and multiple jurisdictions to the public and agencies. The MBNMS will develop coordinated training with enforcement personnel and docents on how to effectively report MBNMS violations. The MBNMS will establish and promote a call-in system and infrastructure for the public to report incidents for enforcement follow-up.

Activity 8.3: Increase Use of Summary Settlement Process

NOAA will finalize and use as appropriate a summary settlement process, which would allow tickets or civil penalties to be levied on-scene to offenders.

Activity 8.4: Increase Coordination Between Education and Enforcement Programs

The MBNMS will continue to coordinate the MBNMS education and enforcement programs in order to address wildlife disturbance issues. The MBNMS will design and implement a formal system to facilitate referrals from docents or programs such as Team OCEAN to the enforcement program.

Action Plan Partners: California Department of Fish and Game, Department of Motor Vehicles, Harbors, US Fish and Wildlife, Save Our Shores, Defenders of Wildlife, Friends of the Sea Otter, pilot organizations, training schools, flight clubs, publications (*Inflyer*, *PacFlyer*, *AOPA*), airports, recruiting of volunteer pilots, Point Reyes Bird Observatory, California Coastal National Monument, research institutes, County and State Film Commissions, Visitor and Tourism Bureaus, NOAA Fisheries, State Parks, BayNet, docent outreach, non-profit groups, Ocean Conservancy, Monterey Bay Aquarium, Friends of the Elephant Seal, American Plastics Council, California Coastal Commission, Surfrider Foundation, San Francisco State University, Stanford, Naval Postgraduate School, Military, police, Team OCEAN

Table MMST 1: Measuring Performance of the Marine Mammal, Seabird, and Turtle Disturbance Action Plan

Desired Outcome(s) For This Action Plan:	
Reduce wildlife disturbance by strengthening and expanding the Team OCEAN education and enforcement efforts.	
Performance Measures	Explanation
By 2012, reduce by 50% the number of incidents of disturbance observed by Team OCEAN education program.	The number of contacts and disturbance observations by Team OCEAN will also be tracked seasonally and annually. Variability in the number of contacts should be correlated to the number of personnel in the field since implementation of the action plans will result in expanding the number of docents and volunteers as well as the enforcement staff. Increasing number of contacts may not be an indication of increased instances of wildlife disturbance.

Table MMST 2: Estimated Timelines for the Marine Mammal, Seabird, and Turtle Disturbance Action Plan

Marine Mammal Seabird and Turtle Disturbance Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy MMST-1: Mitigate Impacts From Marine Vessels	●		●		▶
Strategy MMST-2: Mitigate Impacts From Low Flying Aircraft	●		●	●	▶
Strategy MMST-3: Mitigate Impacts From Shore Based Activities	●		●		▶
Strategy MMST-4: Mitigate Impacts From Marine Debris	●			●	▶
Strategy MMST-5: Evaluate Impacts From Commercial Harvest			●		▶
Strategy MMST-6: Assess Impacts From Acoustics			●		▶
Strategy MMST-7: Reduce Sea Turtle Disturbance			●	●	▶
Strategy MMST-8: Maintain and Enhance Enforcement	●				▶
Legend					
Year Beginning/ Ending	: ● — ●	Major Level of Implementation: —			
Ongoing Strategy	: ● — ▶	Minor Level of Implementation:			

Table MMST 3: Estimated Costs for the Marine Mammal, Seabird, and Turtle Disturbance Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy MMST-1: Mitigate Impacts From Marine Vessels	\$174	\$123	\$112	\$108	\$108
Strategy MMST-2: Mitigate Impacts From Low Flying Aircraft	\$181	\$95	\$32	\$17	\$17
Strategy MMST-3: Mitigate Impacts From Shore Based Activities	\$29	\$29	\$17	\$17	\$17
Strategy MMST-4: Mitigate Impacts From Marine Debris	\$119	\$61	\$38	\$33	\$33
Strategy MMST-5: Evaluate Impacts From Commercial Harvest	\$93.5	\$93.5	\$93.5	\$93.5	\$93.5
Strategy MMST-6: Assess Impacts From Acoustics	\$550	\$45	\$28	\$24	\$24
Strategy MMST-7: Reduce Sea Turtle Disturbance	\$35	\$35	\$32	\$32	\$32
Strategy MMST-8: Maintain and Enhance Enforcement	\$257	\$257	\$257	\$257	\$293
Total Estimated Annual Cost	<i>\$1,438.5</i>	<i>\$738.5</i>	<i>\$609.5</i>	<i>\$581.5</i>	<i>\$617.5</i>

* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.

Motorized Personal Watercraft Action Plan

Goal

To minimize disturbance of marine wildlife by motorized personal watercraft (MPWC), minimize user conflicts between MPWC operators and other recreationalists, and provide appropriate opportunities for MPWC use within the MBNMS.

Introduction

Motorized Personal Watercraft (MPWC) are small, fast, and highly maneuverable craft that possess unconventionally high thrust capability and horsepower relative to their size and weight. This characteristic enables them to make sharp turns at high speeds and alter direction rapidly, while maintaining controlled stability. Their small size, shallow draft, instant thrust, and “quick reflex” enable them to operate closer to shore and in areas that would commonly pose a hazard to conventional craft operating at comparable speeds. Many can be launched across a beach area, without the need for a launch ramp. Most MPWC are designed to shed water, enabling an operator to roll or swamp the vessel without serious complications or interruption of vessel performance. The ability to shunt water from the load carrying area exempts applicable MPWC from United States Coast Guard (USCG) safety rating standards for small boats. MPWC are often designed to accommodate sudden separation and quick remount by a rider. MPWC are not commonly equipped for night operation and have limited instrumentation and storage space compared to conventional vessels. MPWC propelled by a directional water jet pump do not commonly have a rudder and must attain a minimum speed threshold to achieve optimal maneuverability. Most models have no steerage when the jet is idle.

Independent studies and observations in coastal areas of the United States of MPWC impacts indicate that unrestricted access to all reaches of the MBNMS by such craft would pose an unacceptable threat to wildlife and other ocean users. MPWC commonly accelerate and decelerate repeatedly and unpredictably, and travel at rapid speeds directly toward shore, while motorboats generally slow down as they approach shore. Accordingly, disturbance impacts associated with MPWC tend to be locally concentrated, producing effects that are more geographically limited yet potentially more severe than motorboat use, due to repeated disruptions and an accumulation of impacts in a shorter period of time. To prevent the disturbance of wildlife and other nearshore users, most MPWC have been restricted in protected marine areas adjacent to, or overlapping the MBNMS, e.g., the Gulf of the Farallones National Marine Sanctuary (GFNMS) and nearshore areas of the Golden Gate National Recreation Area (GGNRA), Marin County, California State Parks, and the City of Santa Cruz. Current MBNMS management of MPWC is consistent with actions taken in these jurisdictions.

The majority of MPWC currently operated within the MBNMS are compact water jet-propelled craft that shed water from the passenger spaces. Larger size models are preferred in the high-energy ocean environment for increased power, range, and towing ability. Popular uses are operation within the surf zone, weaving in and out of wave lines, launching off the crest of waves and wakes, and towing surfers into waves. MPWC are often operated in pairs or larger groups for camaraderie and improved safety. Use of MPWC to tow surfers into fifty to eighty-foot waves at Mavericks, a surf break off Pillar Point in San Mateo County, is a relatively new

phenomenon in surfing, allowing surfers to ride waves previously considered too large to catch. Use of MPWC for this purpose has increased dramatically during the past decade at Mavericks. In addition, tow-in surfing activity has been increasing at many traditional surfing locations in the MBNMS, regardless of surf conditions. On days with moderate or low surf, MPWC provide ready access and improved flexibility for positioning surfers on wave breaks. On high surf days, MPWC provide access to areas normally considered too dangerous by paddle surfers. The MBNMS has received complaints by surfers, beachgoers, and coastal residents that the use of MPWC in traditional surfing areas has produced conflicts with other ocean users and caused disturbance of wildlife. During its designation, the MBNMS received a large number of similar complaints from the public, and the operation of MPWC in nearshore areas was identified as an activity that should be prohibited to avoid such impacts.

Strategy MPWC-1: Maintain & Enhance Motorized Personal Watercraft Zones

The MBNMS has employed a zoning approach to MPWC management for sixteen years (since 1992) to prevent disturbance of marine wildlife, nearshore habitats, and other coastal users by MPWC. The four existing zones were initially sited based upon the location of public launch facilities, traditional areas of MPWC use, and local wildlife and marine recreation distribution patterns. Zone boundaries have been marked by a total of twenty-one yellow MBNMS can buoys and four USCG navigation aids. The markers are positioned along the perimeter of each zone; however, they present added navigation hazards to mariners. Overall, the zones have received little use by MPWC operators since many ride three-plus-person-capacity craft that have not been restricted to the zones in the past. With the definition of MPWC changing to include three-plus-person-capacity craft, zone use patterns will likely change, though specific impacts by zone are unknown.

The nearshore area immediately southwest of Pillar Point, California, popularly named “Mavericks,” is known world-wide as a unique surfing venue where waves reaching heights of fifty to eighty feet can occur periodically each year. It is the only site of its kind in the continental United States but is wholly within the MBNMS and immediately adjacent to sensitive habitat areas of the James V. Fitzgerald Marine Reserve. Since the Mavericks area is outside of established MBNMS MPWC operating zones, MPWC access to the area required regulatory modifications. A new seasonal MPWC zone southwest of Pillar Point is created by regulation to provide limited recreational MPWC access to the Mavericks surf break.

Activity 1.1: Improve Buoy Marking System

The visibility of the zone marker buoys will be enhanced by marking buoys to identify their purpose and by adding polyvinyl chloride (PVC) piping to extend buoy height above the waterline. MBNMS will incorporate prominent USCG navigational aids into boundary marking schemes whenever possible.

Activity 1.2: Implement Ongoing Buoy Maintenance Program To Assure Buoys Are On Station

The MBNMS will contract with a private vendor to conduct regular maintenance and any necessary modifications to the buoy system to help assure that buoys remain on station, minimize safety hazards, and correctly mark the prescribed zones.

Activity 1.3: Create a new seasonal MPWC use zone at Mavericks and define boundaries and conditions for use

To address recreational use of MPWC at Mavericks and minimize impacts to wildlife, the National Marine Sanctuary Program is creating a new seasonal MPWC zone and access route that avoids sensitive marine mammal, seabird, and shorebird areas (e.g. Fitzgerald Marine Reserve and reef off Pillar Point), avoids time periods when wildlife are most vulnerable to disturbance, avoids time periods when sensitive wildlife are found in peak concentrations, considers user conflicts, and allows recreational MPWC access to the Mavericks surf break during big wave conditions.

The seasonal MPWC zone at Mavericks will exist only under the following conditions: when a "High Surf Warning" has been issued by the National Weather Service and is in effect for San Mateo County during December, January, or February. Access to this zone will be via a 100 yard-wide corridor along a navigation route that is commonly used by vessels accessing the Sanctuary from Pillar Point Harbor.

Activity 1.4: Evaluate zone use

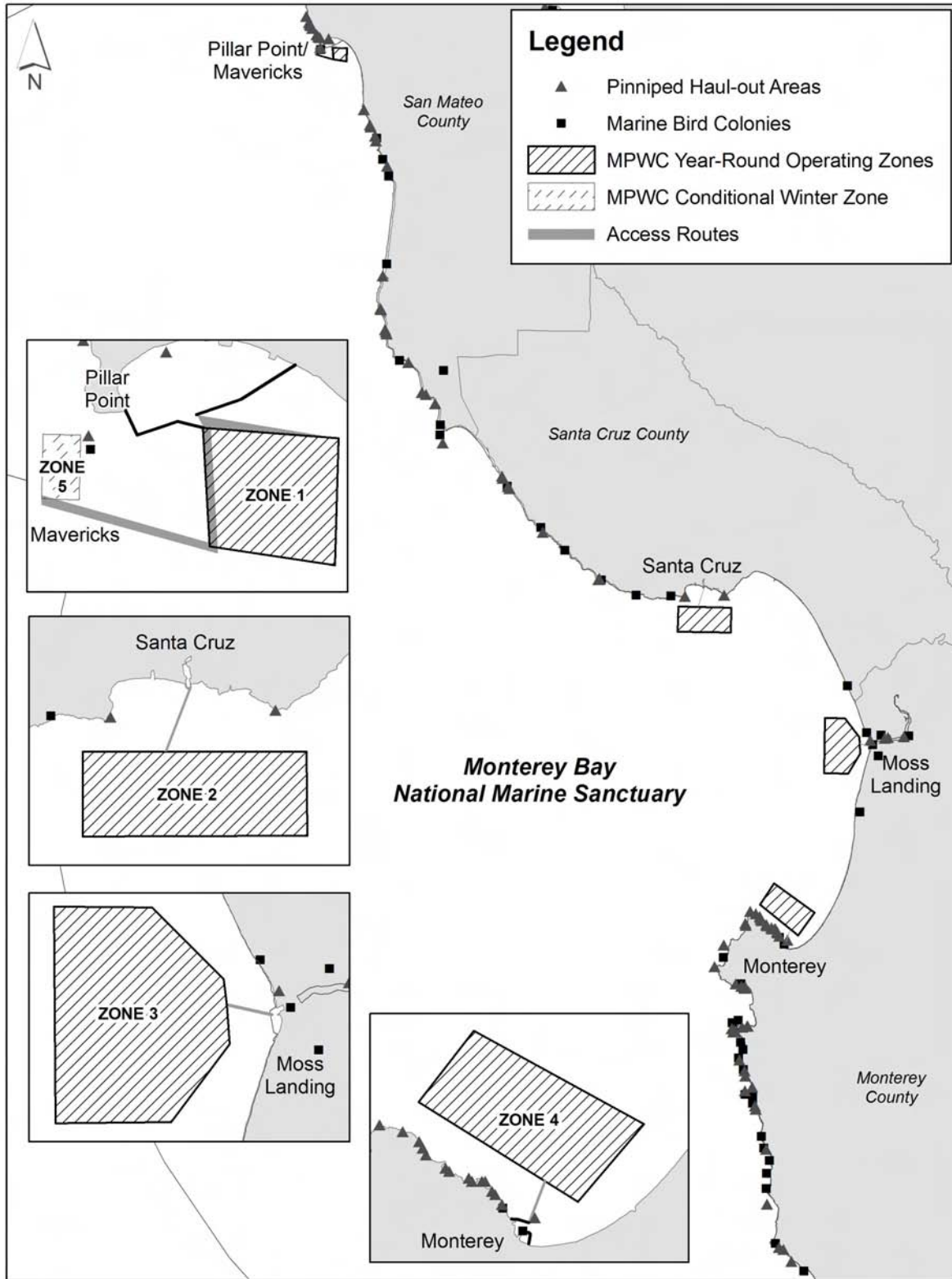
At the end of three years, the MBNMS, in coordination with GFNMS, will evaluate the extent to which the five MPWC use zones are being utilized.

Strategy MPWC-2: Zone Restriction Exceptions

Unless special provisions were made, the new definition of MPWC would significantly limit MPWC training by public safety agencies. Therefore, administrative policies and conditions will be implemented to authorize controlled operation of MPWC by these agencies in areas of the MBNMS outside established operating zones. At least eight state and local public safety agencies currently operate MPWC for purposes of surf zone rescue within the MBNMS. In order to use MPWC during emergencies, these agencies must train their MPWC operators to be familiar with the nearshore areas and ocean dynamics in which they may be called to operate. Since many response areas lie outside of MBNMS MPWC zones, public safety personnel need an administrative mechanism that facilitates familiarization and proficiency training.

The National Marine Sanctuary Program will develop protocols for the permitting of a sponsored big-wave surfing competition at Mavericks that utilize MPWC. In addition, Strategy 1, Activity 1.3 will provide for the creation of a new seasonal zone for limited recreational MPWC access to the Mavericks surf break. The seasonal zone will facilitate both general public access and practice by prospective big-wave surfing competitors.

Figure MPWC 1. MPWC Zones



Activity 2.1: Identify and Implement Official Protocols For Training of Public Safety Personnel

National Marine Sanctuary staff will consult with public safety agencies assigned jurisdictional authority within the MBNMS area to identify MPWC training needs and develop environmental protection protocols that minimize the risk of training impacts upon wildlife and habitats in the Sanctuary. At a minimum, the protocols will limit training to official government public safety personnel assigned to local units exercising jurisdictional authority within the MBNMS. Training shall not occur in sensitive habitat areas, disturb marine wildlife or interfere with other ocean users. Trainees shall use only agency authorized equipment that is marked for ready identification by the public to avoid a misperception of unauthorized use of an MPWC in the MBNMS.

Activity 2.2: Permit or Authorization for Training of Public Safety Personnel

The NOAA will authorize or permit public safety agencies operating MPWC within the MBNMS to conduct MPWC training for locally assigned personnel.

Activity 2.3: Consider Permit Program for one Commercially Sponsored Tow-In Surfing Competition per year at Mavericks (Pillar Point) that uses MPWC

Currently, one commercially sponsored surfing competition using MPWC is organized at Mavericks each year. The GFNMS, in coordination with the MBNMS, will establish guidelines for the limited permitting of MPWC operations at Mavericks as part of one commercially sponsored big-wave competition event per year. If a permit is issued, the activity will be subject to conditions and restrictions that minimize impacts to sanctuary resources.

Strategy MPWC-3: Conduct Educational Outreach to MPWC Community

In order to inform users about use of the zones, eight large enamel interpretive signs were designed, produced, and installed at launch ramps in the four harbors within the MBNMS in 1995. The signs are customized to each harbor location with text of MBNMS MPWC regulations superimposed on a map depicting the nearest operating zone and access route. The MBNMS also designed and published several thousand brochures to provide personal instructions for using the zones and complying with MBNMS regulations. The brochures were distributed to harbor offices and some retail shops. Due to the revised regulations accompanying this action plan, existing outreach materials will need to be modified.

Activity 3.1: Update and Maintain Interpretive Materials (e.g., signs, brochures, videos)

The MBNMS will amend the primary outreach brochure to describe the revised MPWC definition, the zoning system, and how to use the buoy system to remain within the authorized zones. The MBNMS will create new MPWC instructional signs and other media to address revised MPWC regulations and information, and proper riding etiquette.

Activity 3.2: Update Interpretive Methods (e.g., presentations, dock walkers, sign placement, information distribution)

The MBNMS will coordinate with the California Department of Boating and Waterways (CDBW) and conduct a needs assessment survey to determine the most effective method(s) of

contacting MPWC users. The MBNMS will also review locations of instructional signs to ensure they are in prominent locations at launch ramps. Based on the results of the needs assessment, MBNMS will conduct targeted outreach to MPWC user groups, clubs, retailers, renters and repairers, and coordinate with CDBW, volunteer organizations, and harbor masters to provide interpretive information to MPWC operators. The MBNMS will also coordinate with the CDBW to add the MBNMS MPWC regulations link to the department's website.

Activity 3.3: MBNMS Coordination with GFNMS to Maintain the MBNMS NOAA Weather Kiosk at Pillar Point Harbor Launch Ramp for Use By MPWC Operators, Surfers, Boaters, Fishermen, etc.

A weather kiosk is currently located at a prominent location at Pillar Point Harbor to help ocean users determine if appropriate sea conditions exist for authorized MPWC operation at Mavericks. The weather kiosk includes a touch screen computer system linked to real-time weather and oceanographic information from the National Weather Service and National Data Buoy Center. The MBNMS and GFNMS will collaborate to maintain this service for ocean users in the Pillar Point area.

Activity 3.4: Install A Link on the Front Page of the MBNMS and the GFNMS Website for Instant Access to Real-Time Weather and Oceanographic Data from the National Weather Service and National Data Buoy Center

An internet link to oceanographic and weather information will provide ready access by MPWC tow-in operators to information that will help determine if appropriate sea conditions exist for authorized MPWC operation at Mavericks. It will also provide useful information to other MBNMS users and be made available as part of the suite of Sanctuary Integrated Monitoring Network (SIMoN) real-time monitoring tools.

Strategy MPWC-4: Enhance Enforcement Efforts

Oversight and management of MPWC zones requires dedicated enforcement surveillance and rapid response to suspected violations. Harbor patrols and other harbor-based enforcement agencies are uniquely situated to perform this mission, but would require training and financial support. Harbor-based peace officers are familiar with MPWC use patterns in their areas, often receive initial complaint calls from the public, have immediate access to MPWC zones, and are most familiar with harbor areas and adjacent waters.

Activity 4.1: Expanded Deputization of State and Local Peace Officers

The MBNMS will complete a study for utilizing harbor police and other ocean-based law enforcement units to assist the MBNMS in MPWC enforcement. Expanded deputization will be explored to increase surveillance patrols and enforcement personnel to monitor MPWC zones and harbor launch points.

Activity 4.2: Commit Sufficient Enforcement Funding to Support Deputization Agreements

NOAA will seek to provide base funding to support *Activity 4.1* above and will seek augmentation funding from both NOAA and non-NOAA sources.

Activity 4.3: Permit Enforcement at Mavericks Using Permit Fee Funding

Fees may be collected for MPWC use permits at Mavericks and will be used to pay for permit processing, additional monitoring, and/or enforcement of MPWC activity at that location.

Action Plan Partners: United States Coast Guard; California Department of Boating and Waterways; California Department of Parks and Recreation; Cities of Marina, Santa Cruz, Capitola, Half Moon Bay, and Monterey; Pillar Point Harbor; Pacific Grove Ocean Rescue; Surfrider Foundation; Personal Watercraft Industry Association; American Watercraft Association; NOAA Office of Law Enforcement; California Department of Fish and Game; California Highway Patrol; Harbor Police; Sheriff Offices; Police Departments

Table MPWC.1: Measuring Performance of the Motorized Personal Watercraft Action Plan

Desired Outcome(s) For This Action Plan:	
Minimize disturbance of marine wildlife by MPWC, minimize user conflicts, and provide opportunities for MPWC use within the Sanctuary through education and enforcement of MPWC zones.	
Performance Measures	Explanation
By 2012, no observed disturbance of wildlife as a result of MPWC operation.	MBNMS will track the number of reports of wildlife disturbance due to MPWC throughout the MBNMS. This will be obtained from enforcement reports, reports to CDFG, harbor masters, and the USCG. These reports must distinguish MPWC caused disturbance from other types of disturbance discussed in the Marine Mammal, Seabird, and Turtle Disturbance Action Plan. Observed disturbances of wildlife will vary with the level of enforcement, observers, and reporting.

Table MPWC.2: Estimated Timelines for the Motorized Personal Watercraft Action Plan

Marine Personal Watercraft Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy MPWC-1: Maintain & Enhance Motorized Personal Watercraft Zones	●				▶
Strategy MPWC-2: Zone Restriction Exceptions	●	●			
Strategy MPWC-3: Conduct Educational Outreach to MPWC Community	●	●			
Strategy MPWC-4: Enhance Enforcement Efforts	●	●			
Legend					
Year Beginning/ Ending	: ● — ●		Major Level of Implementation: —		
Ongoing Strategy	: ● —▶		Minor Level of Implementation:		

Table MPWC.3: Estimated Costs for the Motorized Personal Watercraft Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy MPWC-1: Maintain & Enhance Motorized Personal Watercraft Zones	\$53	\$33	\$33	\$33	\$33
Strategy MPWC-2: Zone Restriction Exceptions	\$35	\$25	\$0	\$0	\$0
Strategy MPWC-3: Conduct Educational Outreach to MPWC Community	\$81	\$46	\$15.5	\$15.5	\$8
Strategy MPWC-4: Enhance Enforcement Efforts	\$161	\$111	\$111	\$111	\$111
Total Estimated Annual Cost	<i>\$330</i>	<i>\$215</i>	<i>\$159.5</i>	<i>\$159.5</i>	<i>\$152</i>

* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.

Tidepool Protection Action Plan

Goal

Protect tidepool habitat and resources from impacts associated with visitation and harvest.

Background

Tidepools and other components of rocky shores represent a species-rich habitat that attracts a wide array of visitors and collectors. In addition to the positive aspects of direct exposure to Monterey Bay National Marine Sanctuary (MBNMS) life, comes the potential for various forms of human disturbance. The MBNMS currently lacks an overall strategy to address impacts to tidepools from human disturbance. Although a comprehensive regional analysis of the locations and extent of tidepool impacts is lacking, public concerns have been raised about disturbance to tidepools in many different areas of the MBNMS, including James V. Fitzgerald State Marine Park, Pigeon Point, Bean Hollow, Santa Cruz, Monterey, Pacific Grove, Pebble Beach, Big Sur and Cambria. Concerns raised in areas of high visitor traffic include trampling of the resources, turnover of rocks, displacement of both living and nonliving resources, and collecting of intertidal species or shells that can provide habitat. Unfortunately, although there is a wealth of knowledge about tidepool life within the MBNMS, there have not previously been studies that focused on evaluating the extent of human impacts at tidepool locations other than James V. Fitzgerald State Marine Park and Natural Bridges State Beach.

Figure TP-1: Students Tidepooling with MBNMS Staff



Trampling is defined as when animals are crushed or dislodged or algae are damaged. Disturbance may also occur if animals or substrates are not returned to the same location. Collecting is defined as picking animals out of the intertidal area, an activity conducted by casual individual visitors, school groups, aquaria, biosupply companies and for consumption. The largest and most common organisms are most often collected since they are most easily found. In the MBNMS region, species selectively harvested for consumption commonly include owl limpets, black turban snails, and others. In addition to direct losses from disturbance and collecting, secondary changes may result from changes in distribution, prey availability, and competition. Under heavy use, patches of habitat become more frequently disturbed, allowing less time for recovery.

Another source of visitor impacts to tidepools is the discarding of trash, which can remain for extended periods of time and become wedged in the substrate. Various types of equipment for research, harvesting or recreational purposes, which are installed or left behind, may also raise public concerns. The level of impact from these sources is unknown. In addition to visitor impacts from trampling, substrate displacement and collecting, which will be addressed in this action plan, there are a variety of other types of human activities that can have negative impacts

on tidepools, and rocky shores, including coastal armoring, polluted runoff, landslide disposal, small boat groundings, and behavioral disturbance of marine mammals.

Most tidepool areas of the MBNMS do not have significant monitoring and enforcement, signage or educational outreach strategies to minimize human impacts. In addition, there has not been a regional effort to assess usage and potential impacts and to prioritize sites that need additional attention. This action plan provides a framework to collaborate with agencies and local communities to more thoroughly evaluate the issue and develop guidelines and programs for comprehensive education, enforcement, monitoring and management of the region's tidepools. Strategies involve recommendations for coordination with actions by a range of players in addition to actions that should be undertaken by the MBNMS.

Strategy TP-1: Assess the Problem

The MBNMS participated in the Point Pinos Tidepool Task Force, a citizen-based group established several years ago in response to public concern about degradation of tidepool habitats in Pacific Grove. This group focused on improving public awareness about tidepool conservation and conducting research about the role of human impacts in changes that occur in rocky intertidal communities. In collaboration with the Point Pinos Tidepool Task Force Research Committee, the Monterey Bay Sanctuary Foundation administered a contract (that concluded in 2003) to evaluate visitor use patterns and resource impacts at Point Pinos. This study is evaluated locations, amounts and types of visitor uses, assessed documents and conducted interviews about historical patterns at the site. It also included field monitoring of intertidal organisms to evaluate species abundance, distribution patterns, size-frequency and other factors at sites that differ in their levels of visitor use, in an attempt to distinguish visitor impacts from other factors that may influence tidepool life such as oceanographic temperature change.

MBNMS staff is also participating in a similar study of tidepool impacts that is beginning at the James V. Fitzgerald State Marine Park under the direction of the San Mateo County Parks and Recreation Division. This study will build on initial work conducted by James V. Fitzgerald State Marine Reserve staff to evaluate impacts of visitor use via use of control sites that limit access. At the southern boundary of the MBNMS, staff are conducting initial efforts on both tidepool monitoring and educational outreach.

The MBNMS has also compiled a detailed survey of the research and monitoring programs focused on rocky intertidal habitat within the MBNMS (DeVogelaere et al., 1998). This provides basic information on tidepool resources, and also may serve as an initial estimate of locations of intertidal habitats that are accessible to visitors. Staff also collaborates with the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), a consortium of academic scientists that have been conducting extensive monitoring of rocky intertidal habitats. However, additional information is necessary to fully evaluate the extent of impacts to tidepools.

Activity 1.1: Continue Regional Identification and Prioritization of Tidepool Locations

MBNMS staff will work with partners in continuing the identification of areas subject to existing and potential damage, natural resources, presence of unique species assemblages, and heavily used access points. This activity includes refinement of the Joint Management Plan Review

(JMPPR) workgroup’s geographic matrix characterizing the region’s tidepools, drawing on expert and public input, and adding quantitative data where possible. MBNMS will then conduct a rapid assessment of information in the matrix to provide a ground-truthed survey of identified sites. All information will be integrated into the Sanctuary Integrated Monitoring Network (SIMoN).

Activity 1.2: Identify Types and Extent of Impacts to Tidepools

Assess and prioritize types and extent of impacts including collecting, trampling, and other disturbances from people, drawing primarily on existing studies.

Activity 1.3: Monitor to Understand Natural Versus Human-Caused Changes

Include adequate tidepool sites that are not accessible for use as a control to distinguish impacts; include continuation of PISCO, Long-term Monitoring Program and Experiential Training for Students (LiMPETS), and Fitzgerald projects.

Activity 1.4: Improve Data Collection and Database Coordination Among Tidepool Research and Monitoring Projects

This activity will facilitate data comparisons over time to compare impacted and non-impacted sites.

Activity 1.5: Ensure Researchers Understand Key Priorities and Information Needs of Managers and Improve Packaging and Distribution of Existing Research, and Make It Available to Managers and the Public

Activity 1.6: Compile Historical Knowledge About Key Locations

Include community-based and anecdotal information and analysis of museum specimens. This information can be used to raise public awareness.

Activity 1.7: Conduct an Evaluation of Visitors at Representative Sites

This evaluation should include where they come from, what they are doing at the tidepools, frequency and timing of their visits, and their level of awareness of tidepool etiquette. Include evaluations of pre-visit locations such as the Monterey Bay Aquarium and the Seymour Center.

Activity 1.8: Assess Potential Impacts of Restricted Use Compared to Unrestricted Use

Shifting patterns of use at one site impacts other locations where uses are unrestricted.

Strategy TP-2: Conduct Education and Outreach

MBNMS continues to work with various partners to produce interpretive signage to provide information about tidepools and tidepool etiquette aimed at reducing impacts to heavily visited locations. Completed signs are in place in Pacific Grove, and new ones are underway in San Mateo County and the San Simeon/ Cambria region. To supplement the signage, staff assisted California Department of Parks and Recreation (CDPR) in the production of a new video for school groups and teachers that focuses on tidepool etiquette, and will be working on the local distribution of that product.

Activity 2.1: Develop Appropriate Education and Outreach Materials About Tidepool Protection and Etiquette

MBNMS will work with partners to develop education and outreach materials. These materials will target the public, schools, collectors/researchers and culturally diverse groups and include information about existing regulations and multiple agency jurisdictions, which may be complex and difficult to understand. Visitors should understand it is their responsibility to know these regulations.

Activity 2.2: Consider Potential for Hands-on Exhibits or Live Display Tables

MBNMS will coordinate with other partners and agencies to place exhibits at selected tidepool sites or visitor centers, which could reduce the need for hands-on activities in the tidepools themselves.

Activity 2.3: Develop and Distribute Pre-Visit Education and Outreach Materials about Tidepool Etiquette

MBNMS programs will be established at key visitor locations such as aquaria, which often inspire subsequent field visits.

Strategy TP-3: Strengthen Enforcement

The intertidal zone within the MBNMS is governed by a complex array of multijurisdictional laws and regulations. As of 2003, California Fish and Game Code 8500 restricts the taking of mollusks, crustaceans, or other invertebrates for commercial purposes by any person in any tidal area without a valid tidal invertebrate permit. This restriction covers tide flats or other areas between the high tide mark and 1,000 feet beyond the low tidemark. For non-commercial collection, a more complex set of constraints is outlined in Title 14 §29.05 of the California Code of Regulations (CCR). Enforcement of collecting regulations is an ongoing challenge given the limited number of wardens available. In 2003, four California Department of Fish and Game (CDFG) wardens covered the entire MBNMS coastline, with responsibilities for enforcing a wide range of regulations beyond those covering tidepools. Other enforcement resources include CDPR rangers, city police departments, and the MBNMS's enforcement officer, all of whom are stretched thin by an array of duties and geographic needs unrelated to tidepools.

Activity 3.1: Improve Enforcement of Existing Regulations

MBNMS will work with partner agencies to improve enforcement by, as resources allow, funding more officers/wardens in the field and increasing patrol hours to devote more attention to tidepool issues.

Activity 3.2: Utilize Enforcement to Focus on Significant Violations

Enforcement for significant violations is required at all hours, particularly to provide coverage for off-peak hours when these significant incidences often occur.

Activity 3.3: Improve Interagency Coordination

MBNMS will work with partners to leverage field efforts and increase coordination between MBNMS, CDFG, CDPR and local police. MBNMS will also investigate methods to provide training to municipal enforcement officers.

Activity 3.4: Define a System of Referrals from Docents to Enforcement Officers

MBNMS will work with partners to define a communication infrastructure needed to quickly contact enforcement officers and develop guidance and coordinated training protocols on when to call in enforcement and how to effectively address issues.

Activity 3.5: Integrate Tidepool Incidents and Awareness into Wildlife Disturbance Call-In Systems

MBNMS will work with partners to develop the infrastructure for a system that allows the public to report incidents for enforcement follow-up. This system would be coordinated with the CDFG CalTip system and Save Our Shores (SOS) MBNMS Watch.

Strategy TP-4: Improve Tracking and Evaluation of Collection and Take

Activity 4.1: Develop Information to Estimate Legal and Illegal Recreational and Scientific Take

Activity 4.2: Improve Tracking of Use Under State Collection Permit System and Develop Take Information Using California Department of Fish and Game Citation Data Base

MBNMS will coordinate with CDFG to evaluate the utility of the database as a tracking tool for collection and take from tidepools in MBNMS.

Activity 4.3: Improve Consistency Between Existing Federal, State and Local Data Sources

MBNMS will facilitate integration and comparison of data (e.g., terminology and categories of invertebrate life used on forms).

Activity 4.4: Improve Tracking of Take and Collection from MBNMS Permit Process

MBNMS will assess take and collection and other associated data available at the permit locations. MBNMS staff will also work with existing and potential permittees to increase compliance and use of the permit process, including when permits are required, reporting needed, nontransferability of permits, etc.

Activity 4.5: Include Information on the Permits Needed from Multiple Agencies on Agency Websites

Strategy TP-5: Consider Limitation on Use in Selected Locations

The Sanctuary itself prohibits the alteration of the seabed without a permit <http://montereybay.nos.noaa.gov/resourcepro/prohibitions.html>. However, this regulation has generally been applied to tidepool visitation only if rocks are being removed from the site. MBNMS is a partner with other agencies who directly regulate collecting of intertidal organisms in their efforts to prevent adverse impact to the intertidal zone. In certain locations within the Sanctuary, there is an additional layer of regulation imposed by virtue of its state or local designation as a protected area. There is a panoply of these small protected areas within the MBNMS including state beaches, state marine reserves, state marine conservation areas, and state marine parks. These designations restrict the take and disturbance of the intertidal zone to varying degrees, but generally afford tidepool habitats and organisms greater protection from both commercial and non-commercial impacts. Some allow the take of specified plants and

invertebrates while others may prohibit both take and disturbance. A comprehensive list of these sites and their associated regulations is available at <http://montereybay.nos.noaa.gov/research/techreports/marinezones/>. The MBNMS will evaluate alternative management options at locations where education and enforcement are unlikely to be sufficient.

Activity 5.1: Develop Criteria for Determining Limited Use of Tidepools and Rank Sites

MBNMS will coordinate with partners and use information gathered in the Tidepool Evaluation to determine if limitations are necessary at certain sites.

Activity 5.2: Partner with Agencies with Jurisdictions at Identified Sites

MBNMS will work with partners to assess and develop feasible site-specific management alternatives, including consideration of:

- A. Reservation systems at key sites, including identification of carrying capacity and setting of caps on allowable numbers of visitors for locations with limited access;
- B. Restriction or redirection of coastal access via recommendations to the California Coastal Commission (CCC), CDPR or other agencies, including potential relocation of parking lots and access paths or redirecting visitors or school groups to sites other than tidepools, such as Elkhorn Slough or proximal sandy beaches, and development of education and enforcement at those alternative sites; and
- C. Consideration of tidepool state marine reserves in the Marine Life Protection Act (MLPA) process, building on initial evaluations in the workgroup’s tidepool geographic matrix that may require temporary closures at selected sites, or roping off particularly sensitive areas within a site. California is considering the establishment of an intertidal State Marine Reserve at Natural Bridges in Santa Cruz County.

Strategy TP-6: Identify Implementation Opportunities

Activity 6.1: Increase Multiagency Funding and Joint Staffing to Implement Program

Activity 6.2: Develop Voluntary Contributions

- A. Consider developing an Adopt a Tidepool program
- B. Consider “parking meter” style donation systems at tidepool locations
- C. Generate support from local businesses

Strategy TP-7: Address Other Human Activities

Activity 7.1: Address Other Types of Human Activities

Focus on human activities, which impact tidepools and rocky shores. Consider strategies included in other JMPR action plans.

- A. Evaluate impacts of coastal armoring to ensure that armoring such as rip rap does not harm sensitive tidepool locations.
- B. Reduce polluted runoff from agricultural lands, urban areas and parking lots onto sensitive tidepool locations.

- C. Reduce spills of sewage and oil or discharge of marine debris, which can end up in tidepools.
- D. Review oil spill contingency plans to evaluate adequacy of spill clean-up recommendations for rocky intertidal locations, and ensure that the methodology will not do further damage.
- E. Reduce small boat groundings, which can crush rocky intertidal life, and develop recovery programs or damage fees to be used for tidepool efforts when damage occurs.
- F. Reduce impacts from landslide disposal activities onto sensitive tidepool locations.
- G. Reduce visitor harassment of marine mammals, which haul out on or near rocky intertidal locations.

Action Plan Partners: University of California Santa Cruz, Partnership for Interdisciplinary Studies of Coastal Oceans, Long Marine Lab, Monterey Bay Aquarium, Hopkins Marine Station, California Department of Fish and Game, State Parks, trained volunteers and interns, cities, counties, BayNet, Save Our Shores, Fitzgerald, Seymour Center, schools, science camps, visitor centers, local jurisdictions

Table TP 1: Measuring Performance of the Tidepool Protection Plan

Desired Outcome(s) For This Action Plan:	
Increase understanding of impacts to rocky intertidal areas and protect the habitat and resources from impacts associated with visitation, pollution, harvest, or development.	
Performance Measures	Explanation
Develop and implement education and enforcement programs at five most “at risk” tidepool locations by 2012.	Evaluation of progress toward protection of the rocky intertidal habitat within the Sanctuary can be evaluated by measuring the number of enforcement and education programs implemented. Incremental evaluation will tabulate the number of education and enforcement programs at high priority and high-risk rocky intertidal areas.

Table TP 2: Estimated Timelines for the Tidepool Protection Plan

Tidepool Protection Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy TP-1: Assess the Problem	●.....			●.....●	
Strategy TP-2: Conduct Education and Outreach	●.....			●.....▶	
Strategy TP-3: Strengthen Enforcement	●.....		●.....		▶
Strategy TP-4: Improve Tracking and Evaluation of Collection and Take	●.....			●.....●	
Strategy TP-5: Consider Limitation on Use in Selected Locations	●.....			●.....●	
Strategy TP-6: Identify Implementation Opportunities	●.....			●.....●	
Strategy TP-7: Address Other Human Activities	●.....			●.....●	
Legend					
Year Beginning/ Ending	: ●.....●	Major Level of Implementation: _____			
Ongoing Strategy	: ●.....▶	Minor Level of Implementation:			

Table TP 3: Estimated Costs for the Tidepool Protection Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy TP-1: Assess the Problem	\$137	\$49	\$128	\$17	\$112
Strategy TP-2: Conduct Education and Outreach	\$163	\$105	\$67	\$47	\$43.5
Strategy TP-3: Strengthen Enforcement	\$181	\$181	\$185	\$185	\$185
Strategy TP-4: Improve Tracking and Evaluation of Collection and Take	\$28	\$28	\$4	\$4	\$4
Strategy TP-5: Consider Limitation on Use in Selected Locations	\$0	\$16	\$20	\$130	\$130
Strategy TP-6: Address Other Human Activities	\$24	\$12	\$12	\$12	\$12
Total Estimated Annual Cost	\$533	\$391	\$416	\$395	\$486.5

* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.